

How I Learned to Stop Worrying and Love the SWCX Emission

In the last twenty years solar wind charge exchange (SWCX) X-ray emission has gone from a significant and irritating background component of unknown origin for astrophysical observations to a field of study in its own right. On one hand, it provides an uncertain offset to observations of extended astrophysical objects and the diffuse X-ray background, and severely compromises the interpretation of many results. On the other hand, SWCX emission has the potential to shed light on physical phenomena in the near-Earth environment and the solar system. In addition, charge exchange emission may prove significant in many other areas of astrophysical diffuse X-ray emission such as supernova remnants. I will present an historical background from the perspective of studying the diffuse X-ray background, cover a variety of SWCX observations and implications, and discuss the realm of possible research and practical applications based on SWCX emission.